

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_NICHOLS 20-6 PAD

Nichols 9-6

Nichols 9-6

Plan: Nichols 9-6 (wp02)

Standard Planning Report

15 February, 2011



Project: COLORADO NORTHERN ZONE - 83
 Site: WELD_NICHOLS 20-6 PAD
 Well: Nichols 9-6
 Wellbore: Nichols 9-6
 Section:
 SHL:
 Design: Nichols 9-6 (wp02)
 Latitude: 40.164727
 Longitude: -104.702494
 GL: 4872.00
 KB: WELL @ 4872.00ft (Original Well Elev)

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4132.00	4275.32	PK Depth
4507.00	4650.32	SX Depth
7010.00	7153.32	NIO Depth
7292.00	7435.32	CD Depth
7378.00	7521.32	GH Depth
7748.00	7891.32	J Depth



Azimuths to True North
 Magnetic North: 8.86°

Magnetic Field
 Strength: 53052.9snT
 Dip Angle: 66.88°
 Date: 2/1/2011
 Model: IGRF2010

WELL DETAILS: Nichols 9-6

+N/-S	+E/-W	Northing	Ground Level: Easting	4872.00 Latitude	Longitude	Slot
0.00	0.00	1303855.38	3222881.49	40.164727	-104.702494	

CASING DETAILS

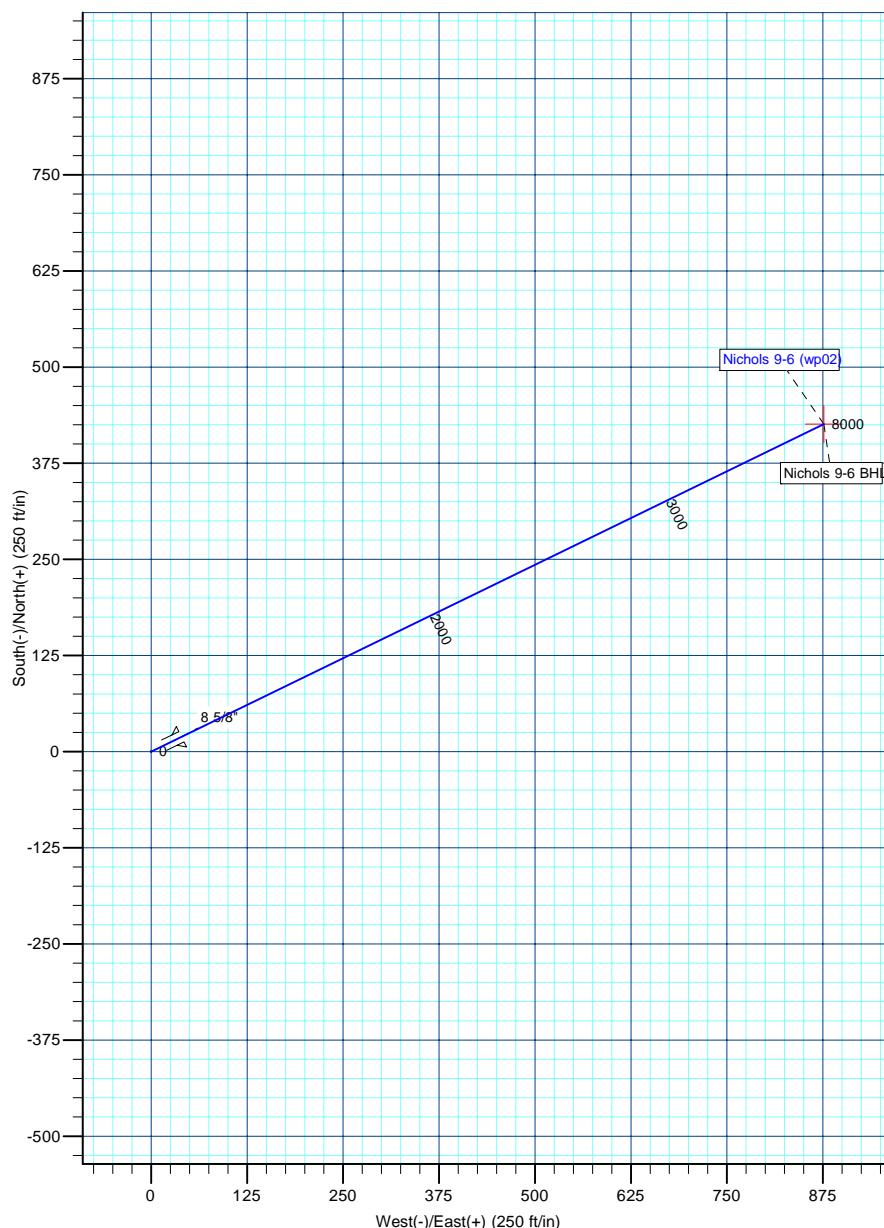
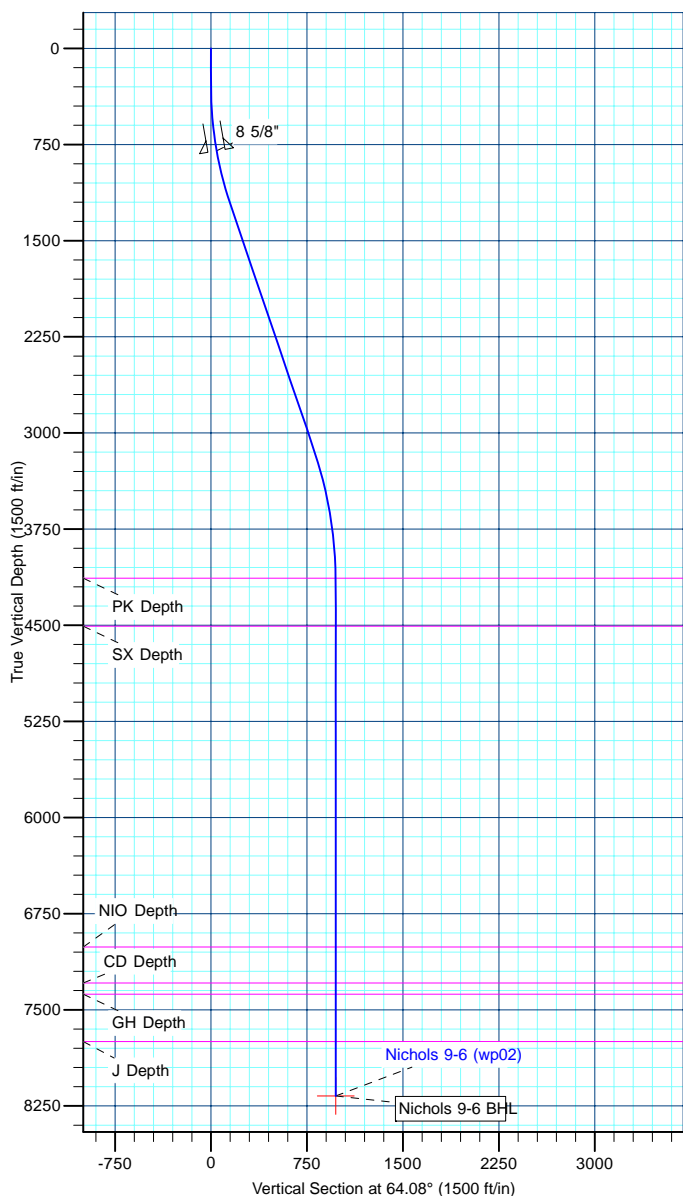
TVD	MD	Name	Size
800.00	802.57	8 5/8"	8-5/8

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
Nichols 9-6 BHL	8172.00	425.87	876.14	1304289.12	3223753.77	40.165896	-104.699359	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00
1242.71	18.85	64.08	1225.79	67.20	138.25	2.00	64.08	153.71
3237.93	18.85	64.08	3113.95	349.07	718.15	0.00	0.00	798.49
4315.32	0.00	0.00	4172.00	425.87	876.14	1.75	180.00	974.17
8315.32	0.00	0.00	8172.00	425.87	876.14	0.00	0.00	974.17



Database:	edm5000p	Local Co-ordinate Reference:	Well Nichols 9-6
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4872.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4872.00ft (Original Well Elev)
Site:	WELD_NICHOLS 20-6 PAD	North Reference:	True
Well:	Nichols 9-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	Nichols 9-6		
Design:	Nichols 9-6 (wp02)		

Project	COLORADO NORTHERN ZONE - 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		WELD_NICHOLS 20-6 PAD			
Site Position:		Northing:	1,303,855.91 ft	Latitude:	40.164728
From:	Lat/Long	Easting:	3,222,897.70 ft	Longitude:	-104.702436
Position Uncertainty:	0.00 ft	Slot Radius:	0 "	Grid Convergence:	0.52

Well	Nichols 9-6					
Well Position	+N-S	-0.38 ft	Northing:	1,303,855.38 ft	Latitude:	40.164727
	+E-W	-16.21 ft	Easting:	3,222,881.49 ft	Longitude:	-104.702494
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,872.00 ft

Wellbore	Nichols 9-6				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/1/2011	8.86	66.88	53,053

Design	Nichols 9-6 (wp02)			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	64.08

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,242.71	18.85	64.08	1,225.79	67.20	138.25	2.00	2.00	0.00	64.08	
3,237.93	18.85	64.08	3,113.95	349.07	718.15	0.00	0.00	0.00	0.00	
4,315.32	0.00	0.00	4,172.00	425.87	876.15	1.75	-1.75	0.00	180.00	
8,315.32	0.00	0.00	8,172.00	425.87	876.15	0.00	0.00	0.00	0.00	Nichols 9-6 BHL

Database:	edm5000p	Local Co-ordinate Reference:	Well Nichols 9-6
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4872.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4872.00ft (Original Well Elev)
Site:	WELD_NICHOLS 20-6 PAD	North Reference:	True
Well:	Nichols 9-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	Nichols 9-6		
Design:	Nichols 9-6 (wp02)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	2.00	64.08	399.98	0.76	1.57	1.75	2.00	2.00	0.00
500.00	4.00	64.08	499.84	3.05	6.28	6.98	2.00	2.00	0.00
600.00	6.00	64.08	599.45	6.86	14.11	15.69	2.00	2.00	0.00
700.00	8.00	64.08	698.70	12.19	25.07	27.88	2.00	2.00	0.00
800.00	10.00	64.08	797.47	19.03	39.14	43.52	2.00	2.00	0.00
802.57	10.05	64.08	800.00	19.22	39.55	43.97	2.00	2.00	0.00
8 5/8"									
900.00	12.00	64.08	895.62	27.37	56.30	62.60	2.00	2.00	0.00
1,000.00	14.00	64.08	993.06	37.20	76.53	85.10	2.00	2.00	0.00
1,100.00	16.00	64.08	1,089.64	48.52	99.81	110.98	2.00	2.00	0.00
1,200.00	18.00	64.08	1,185.27	61.30	126.10	140.21	2.00	2.00	0.00
1,242.71	18.85	64.08	1,225.79	67.20	138.25	153.71	2.00	2.00	0.00
1,300.00	18.85	64.08	1,280.00	75.29	154.90	172.23	0.00	0.00	0.00
1,400.00	18.85	64.08	1,374.64	89.42	183.96	204.54	0.00	0.00	0.00
1,500.00	18.85	64.08	1,469.27	103.55	213.03	236.86	0.00	0.00	0.00
1,600.00	18.85	64.08	1,563.91	117.67	242.09	269.18	0.00	0.00	0.00
1,700.00	18.85	64.08	1,658.54	131.80	271.16	301.49	0.00	0.00	0.00
1,800.00	18.85	64.08	1,753.18	145.93	300.22	333.81	0.00	0.00	0.00
1,900.00	18.85	64.08	1,847.81	160.06	329.28	366.12	0.00	0.00	0.00
2,000.00	18.85	64.08	1,942.44	174.18	358.35	398.44	0.00	0.00	0.00
2,100.00	18.85	64.08	2,037.08	188.31	387.41	430.76	0.00	0.00	0.00
2,200.00	18.85	64.08	2,131.71	202.44	416.48	463.07	0.00	0.00	0.00
2,300.00	18.85	64.08	2,226.35	216.57	445.54	495.39	0.00	0.00	0.00
2,400.00	18.85	64.08	2,320.98	230.70	474.61	527.70	0.00	0.00	0.00
2,500.00	18.85	64.08	2,415.62	244.82	503.67	560.02	0.00	0.00	0.00
2,600.00	18.85	64.08	2,510.25	258.95	532.74	592.34	0.00	0.00	0.00
2,700.00	18.85	64.08	2,604.89	273.08	561.80	624.65	0.00	0.00	0.00
2,800.00	18.85	64.08	2,699.52	287.21	590.87	656.97	0.00	0.00	0.00
2,900.00	18.85	64.08	2,794.15	301.33	619.93	689.29	0.00	0.00	0.00
3,000.00	18.85	64.08	2,888.79	315.46	648.99	721.60	0.00	0.00	0.00
3,100.00	18.85	64.08	2,983.42	329.59	678.06	753.92	0.00	0.00	0.00
3,200.00	18.85	64.08	3,078.06	343.72	707.12	786.23	0.00	0.00	0.00
3,237.93	18.85	64.08	3,113.95	349.07	718.15	798.49	0.00	0.00	0.00
3,300.00	17.77	64.08	3,172.88	357.60	735.69	817.99	1.75	-1.75	0.00
3,400.00	16.02	64.08	3,268.56	370.30	761.82	847.05	1.75	-1.75	0.00
3,500.00	14.27	64.08	3,365.08	381.72	785.31	873.17	1.75	-1.75	0.00
3,600.00	12.52	64.08	3,462.36	391.85	806.15	896.33	1.75	-1.75	0.00
3,700.00	10.77	64.08	3,560.30	400.67	824.30	916.51	1.75	-1.75	0.00
3,800.00	9.02	64.08	3,658.81	408.18	839.75	933.69	1.75	-1.75	0.00
3,900.00	7.27	64.08	3,757.80	414.37	852.49	947.86	1.75	-1.75	0.00
4,000.00	5.52	64.08	3,857.17	419.24	862.50	958.99	1.75	-1.75	0.00
4,100.00	3.77	64.08	3,956.84	422.78	869.78	967.09	1.75	-1.75	0.00
4,200.00	2.02	64.08	4,056.71	424.99	874.32	972.13	1.75	-1.75	0.00
4,275.32	0.70	64.08	4,132.00	425.77	875.93	973.92	1.75	-1.75	0.00
PK Depth									
4,300.00	0.27	64.08	4,156.68	425.86	876.11	974.13	1.75	-1.75	0.00
4,315.32	0.00	0.00	4,172.00	425.87	876.15	974.17	1.75	-1.75	0.00
4,400.00	0.00	0.00	4,256.68	425.87	876.15	974.17	0.00	0.00	0.00
4,500.00	0.00	0.00	4,356.68	425.87	876.15	974.17	0.00	0.00	0.00
4,600.00	0.00	0.00	4,456.68	425.87	876.15	974.17	0.00	0.00	0.00

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Site:	WELD_NICHOLS 20-6 PAD	North Reference:	True
Well:	Nichols 9-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	Nichols 9-6		
Design:	Nichols 9-6 (wp02)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,650.32	0.00	0.00	4,507.00	425.87	876.15	974.17	0.00	0.00	0.00
SX Depth									
4,700.00	0.00	0.00	4,556.68	425.87	876.15	974.17	0.00	0.00	0.00
4,800.00	0.00	0.00	4,656.68	425.87	876.15	974.17	0.00	0.00	0.00
4,900.00	0.00	0.00	4,756.68	425.87	876.15	974.17	0.00	0.00	0.00
5,000.00	0.00	0.00	4,856.68	425.87	876.15	974.17	0.00	0.00	0.00
5,100.00	0.00	0.00	4,956.68	425.87	876.15	974.17	0.00	0.00	0.00
5,200.00	0.00	0.00	5,056.68	425.87	876.15	974.17	0.00	0.00	0.00
5,300.00	0.00	0.00	5,156.68	425.87	876.15	974.17	0.00	0.00	0.00
5,400.00	0.00	0.00	5,256.68	425.87	876.15	974.17	0.00	0.00	0.00
5,500.00	0.00	0.00	5,356.68	425.87	876.15	974.17	0.00	0.00	0.00
5,600.00	0.00	0.00	5,456.68	425.87	876.15	974.17	0.00	0.00	0.00
5,700.00	0.00	0.00	5,556.68	425.87	876.15	974.17	0.00	0.00	0.00
5,800.00	0.00	0.00	5,656.68	425.87	876.15	974.17	0.00	0.00	0.00
5,900.00	0.00	0.00	5,756.68	425.87	876.15	974.17	0.00	0.00	0.00
6,000.00	0.00	0.00	5,856.68	425.87	876.15	974.17	0.00	0.00	0.00
6,100.00	0.00	0.00	5,956.68	425.87	876.15	974.17	0.00	0.00	0.00
6,200.00	0.00	0.00	6,056.68	425.87	876.15	974.17	0.00	0.00	0.00
6,300.00	0.00	0.00	6,156.68	425.87	876.15	974.17	0.00	0.00	0.00
6,400.00	0.00	0.00	6,256.68	425.87	876.15	974.17	0.00	0.00	0.00
6,500.00	0.00	0.00	6,356.68	425.87	876.15	974.17	0.00	0.00	0.00
6,600.00	0.00	0.00	6,456.68	425.87	876.15	974.17	0.00	0.00	0.00
6,700.00	0.00	0.00	6,556.68	425.87	876.15	974.17	0.00	0.00	0.00
6,800.00	0.00	0.00	6,656.68	425.87	876.15	974.17	0.00	0.00	0.00
6,900.00	0.00	0.00	6,756.68	425.87	876.15	974.17	0.00	0.00	0.00
7,000.00	0.00	0.00	6,856.68	425.87	876.15	974.17	0.00	0.00	0.00
7,100.00	0.00	0.00	6,956.68	425.87	876.15	974.17	0.00	0.00	0.00
7,153.32	0.00	0.00	7,010.00	425.87	876.15	974.17	0.00	0.00	0.00
NIO Depth									
7,200.00	0.00	0.00	7,056.68	425.87	876.15	974.17	0.00	0.00	0.00
7,300.00	0.00	0.00	7,156.68	425.87	876.15	974.17	0.00	0.00	0.00
7,400.00	0.00	0.00	7,256.68	425.87	876.15	974.17	0.00	0.00	0.00
7,435.32	0.00	0.00	7,292.00	425.87	876.15	974.17	0.00	0.00	0.00
CD Depth									
7,500.00	0.00	0.00	7,356.68	425.87	876.15	974.17	0.00	0.00	0.00
7,521.32	0.00	0.00	7,378.00	425.87	876.15	974.17	0.00	0.00	0.00
GH Depth									
7,600.00	0.00	0.00	7,456.68	425.87	876.15	974.17	0.00	0.00	0.00
7,700.00	0.00	0.00	7,556.68	425.87	876.15	974.17	0.00	0.00	0.00
7,800.00	0.00	0.00	7,656.68	425.87	876.15	974.17	0.00	0.00	0.00
7,891.32	0.00	0.00	7,748.00	425.87	876.15	974.17	0.00	0.00	0.00
J Depth									
7,900.00	0.00	0.00	7,756.68	425.87	876.15	974.17	0.00	0.00	0.00
8,000.00	0.00	0.00	7,856.68	425.87	876.15	974.17	0.00	0.00	0.00
8,100.00	0.00	0.00	7,956.68	425.87	876.15	974.17	0.00	0.00	0.00
8,200.00	0.00	0.00	8,056.68	425.87	876.15	974.17	0.00	0.00	0.00
8,300.00	0.00	0.00	8,156.68	425.87	876.15	974.17	0.00	0.00	0.00
8,315.32	0.00	0.00	8,172.00	425.87	876.15	974.17	0.00	0.00	0.00
Nichols 9-6 BHL									

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Well:	Nichols 9-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	Nichols 9-6		
Design:	Nichols 9-6 (wp02)		

Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
Nichols 9-6 BHL	0.00	0.00	8,172.00	425.87	876.15	1,304,289.12	3,223,753.77	40.165896	-104.699359
- plan hits target center									
- Point									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
802.57	800.00	8 5/8"	8-5/8	11

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,275.32	4,132.00	PK Depth			
4,650.32	4,507.00	SX Depth			
7,153.32	7,010.00	NIO Depth			
7,435.32	7,292.00	CD Depth			
7,521.32	7,378.00	GH Depth			
7,891.32	7,748.00	J Depth			